2007 Forest Health Highlights

Maine

Eastern White Pine

January 2008

The Resource

Maine's forests provide much of the raw materials to fuel the State's mills and serve as the backdrop for the recreation industry. These forest-based industries employ more than 12 percent of Maine's workforce and generate over 11 percent of the State's payroll. The overall annual contribution of the forest resource to Maine's economy exceeds $8.5 billion. The forests of the State also provide watershed, environmental, wildlife, and recreational benefits. Forested parks and individual shade trees provide similar amenities in urban and suburban settings.

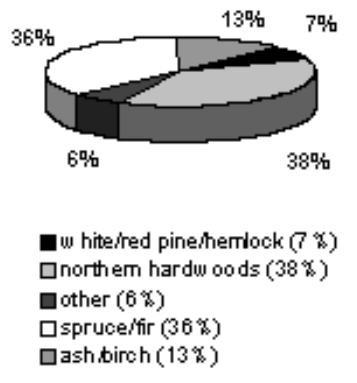
90% of the State is forested (17,689,000 acres)

Out of the forested area:

- **95.7% timberland**
- **4.3% noncommercial**

or reserved forest land

Major Forest Types:



Special Issues

The annual collection of Forest Inventory and Analysis data for long-term **forest inventory and monitoring**, using a standard national plot design and core measurements, has been underway in Maine for almost a decade. The Maine Forest Service has incorporated this survey, which integrates the traditional forest inventory with the Forest Health Monitoring Program, into its base internal assessment of forest condition. Beyond the nationally monitored variables such as tree condition, soils, lichens, and ozone bioindicator plants, additional data is collected to address local issues ranging from specific pest impacts to quality of wildlife habitat. The Maine Forest Service has also increased involvement in the USDA Animal and Plant Health Inspection Service, Cooperative Agriculture Pest Survey, using this program to increase early warning survey capacity for nonnative forest pests.

Hemlock woolly adelgid was first detected in native hemlocks in Maine in 2003 and currently occurs in light infestations scattered over approximately 15,000 acres in five towns in the southernmost tip of the State including Kittery, Wells, York, Eliot, and South Berwick. Populations on this nonnative pest continue to thrive within the previously infested area and new spots have been found both within the core area and on the leading edge of the infestation. The Maine Forest Service is carrying out an integrated slow-the-spread management program to reduce the spread and impact of established adelgid populations in York County. Some of the highlights of the slow-the-spread effort include: regulating hemlock movement with the existing quarantine; release of predator beetles in Kittery and York; spraying hemlocks in four infested towns with insecticide oil; expanding public outreach efforts; and destruction of any infested outplanted nursery stock.

The Maine Forest Service has trapped for the nonnative **pine shoot beetle** since 1999. During trapping surveys performed between 2000 and 2003 the beetles were collected in Oxford and Franklin Counties. The quarantine area in Maine has been expanded to include all of Maine except Aroostook and Washington Counties. During 2007, trapping was conducted at 16 sites in five counties, including 7 industrial sites that handle pine and 9 plantations/natural stands with hard pines. An additional 20 industrial locations were trapped for a suite of exotic wood borers and bark beetles, including shoot beetle, and no pine shoot beetles were found. However, USDA APHIS did trap a beetle in Franklin County at a site not far from previous beetle recovery sites.

Impact from the **browntail moth**, another nonnative, was low and spotty in 2007. Defoliation was restricted to 408 acres in Topsham. Most other locations in the mid-coast area had just a few trees with light feeding. This insect, which causes severe rashes, will continue to be monitored.

Special Issues cont.

Defoliation of hardwoods from **gypsy moth** larval feeding was not observed in 2007. To date, the 2007 fall egg mass survey in the infested area indicates that the population will remain at endemic levels next season. Almost 250 pheromone traps were set in towns adjacent to the gypsy moth quarantine zone and these traps captured approximately 1900 male moths. Egg mass scouting is underway in towns with high male moth catches. Scouting in 2006 revealed egg masses in five previously unregulated towns. The quarantine zone was expanded northward in 2007 to incorporate those five towns and 28 others across the State.

Males of the **winter moth**, a pest recently introduced into New England, have been positively identified from pheromone traps set out in 2005 and 2006. No larvae or females have been found to date. Defoliation initially attributed to winter moth in Maine last year was actually caused by **fall cankerworm**, where populations of this insect were high in southern Maine. Defoliation was mapped in areas of Kennebunk, Wells, Ogunquit, York, and Kittery with a total acreage of 13,414 damaged across the five towns The feeding was primarily on oak, however, once those trees were defoliated the larvae moved onto other hardwood species and herbaceous plants on the forest floor. This is the second year of high numbers of the cankerworm in this area and also in neighboring southern New Hampshire, with defoliation expected again in 2008. Populations of the **saddled prominent** complex have returned to endemic levels in areas impacted over the past two years.

Balsam woolly adelgid populations continued at low levels in 2007. While mortality from past years is striking, the consistent rainfall of 2004 through 2007 coupled with low population levels of the adelgid allowed a number of the light to moderately damaged trees to recover.

Spruce budworm populations were still very low in 2007, however, pheromone trap catches are beginning to rise on the northwestern border of the State. Pockets of dead and dying larch infested with the **eastern larch beetle** have been observed since the mid 1970's and continue to be a common sight throughout the range of larch in Maine. Stands of larch in southern and central portions of the State, including Downeast, exhibit the highest mortality rates. ***Pityophthorus*** **twig borer** damage on white pine trees was high in 2007. It was not uncommon for mature trees to have affected branches over the entire tree.

Sphaeropsis **tip blight (*Diplodia*)** on pine was widespread and damaging throughout central and southern Maine. The unusually wet weather conditions of 2005 and 2006 likely have resulted in the high levels of infection and damage seen in the 2007 growing season. A forest inventory survey has indicated an abnormally high level of **northern-white-cedar decline** in many areas, in association with a variety of insect and pathogen causal factors.

White spruce and Colorado blue spruce have been heavily damaged over the past two years from excessive needle loss caused by **Spruce needlecast**. Numerous Christmas tree growers reported **balsam fir mortality** of recent transplant stock and of occasional scattered larger trees with unhealthy appearance, possibly due to unusually wet weather in the previous two years.

Larch canker, which remains under State and Federal quarantines, has been known to occur in Maine since 1981. In January 2007, the disease was found in Brunswick in Cumberland County, which is located outside the current Federal quarantine area. In addition it was also found in Township 14, a "buffer" town presently within the quarantine, but previously uninfested.

There were numerous reports of **tar leaf spot** on Norway maples received in late August, September, and October. With very few exceptions, hardwoods were not affected by **anthracnose** diseases during 2007. **Beech bark disease**, **white pine blister rust**, **butternut canker,** and a new wave of **Dutch elm disease** continue to impact the forest resource and urban areas throughout the State.

In 2006, ***Phytophthora ramorum*** was found on infected nursery stock shipped into Kennebec County. Four watersheds were monitored in 2007 to screen for the presence of *P. ramorum* and it has not been detected. **White pine needle blight**, first recognized in the United States in 1996, has caused widespread needle loss on both young and mature white pine in western, central, and southern Maine.

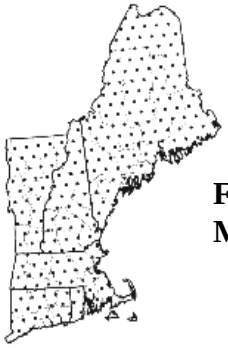
Severe thunderstorms were reported throughout Maine during the summer season with accompanying **micro-bursts** and several localized incidences of tree breakage and uprooting occurred. One particular strong windstorm, referred to as the Patriots Day storm, occurred in mid-April. In late August a significant **hail storm** affected 8,000 acres of hardwoods, causing leaf, branch, and stem damage.

Regional Surveys

Forest Health Monitoring Program

In cooperation with the USDA Forest Service, Maine participates in the National Forest Health Monitoring Program. The program's objective is to assess trends in tree condition and forest stressors. All of the New England States have been involved since the program was initiated in 1990. A healthy forest is defined as having the capacity for renewal, for recovery from a wide range of disturbances, and for retention of its ecological resiliency.

The overall health of the forests in New England is good, with various damage agents present at different times and locations. Results from permanent sample sites indicate that there has been minimal change in crown condition in recent years. There are varying impacts from forest fragmentation, drought, fire, insects, and pathogens. The most significant pests are those that have arrived from other parts of the world, such as the gypsy moth, beech bark disease, and hemlock woolly adelgid. A summary report of *Forest Health Monitoring in the Northeastern United States* can be found at: http://fhm.fs.fed.us.



Forest Health Monitoring Sites

For More Information

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State House Station
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Forest Health Protection
USDA Forest Service
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Durham, NH 03824
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Northeastern Area
State and Private Forestry